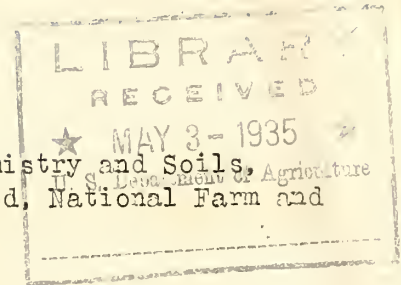


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LAND CLASSIFICATION



A radio talk by Dr. Curtis F. Marbut, Bureau of Chemistry and Soils, broadcast Friday, April 19, 1935, in the Conservation period, National Farm and Home Hour, by NBC and 60 associate radio stations.

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The demand for agricultural adjustment brought about by the depression and the low prices of agricultural products, has made land classification more necessary than ever before. Adjustment cannot very well be effected except on the basis of detailed knowledge of the quality of the land.

A classification on a national scale, one which would apply to the whole country and which would make it possible to compare the lands in every part of the country with those in every other part, must be made on a single uniform basis.

Such a classification cannot be built on the basis of productivity for all crops because crops differ in their demands on the land. However, the requirements of the main crops which man grows, those occupying by far the largest acreage, are surprisingly alike in the demands which they make upon the land.

The result of all this is that we base classification on those crops which are most universally grown and which are most fundamental to the agricultural industry as a whole.

These are the grains, grasses, and fibers. Our classification does not consider at present any other fiber crop than cotton.

But such a classification does not require the determination of the capacity of the land of the whole country to produce cotton or of the whole country to produce this kind of grain or that kind of grain, but requires the determination of the productivity of the land for cotton in the region where cotton is produced, and of one kind of grain in the region where that grain is dominant and of another kind of grain where another kind is dominant.

Another requirement of such a classification is that it must be based on approximately the same kind of land treatment. By that we mean that it must be based on the inherent productivity of the land under standard methods of cultivation without the use of fertilizers, although the use of small quantities of farm manures may be allowed.

Another important fact is that productivity for a given crop cannot be determined by statistics of yield, for the simple fact that yields are obtained by all sorts of methods which differ widely from place to place.

It must be based on land character and it becomes necessary therefore, to establish a relationship between land character and productivity. The meaning of different characteristics of land in terms of productivity for crops must be determined. In order to establish this relationship, we have studied the agriculture in all parts of the country. We have searched out those parts of the country where productivity of the grains and grasses and cotton is consistently highest and determined by careful study the characteristics of soil, climate and character of land surface where these yields have been obtained by standard practice, but without fertilizers. That study has been made for the whole country and the conditions

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of soil, climate and character of land surface for localities where corn has given consistently the largest yields, have been determined. The same has been done for wheat and cotton, as well as for the most valuable grasses.

The accumulated results of such study must give us the requirements of soil climate and shape of land surface which are those most nearly perfect of all the conditions in the United States for the production of the particular grain, grass or fiber for which the study was made. For example, such studies will determine the particular character of soil, climate and relief necessary for the production of the highest yields of corn within the United States. This does not necessarily mean that such soil, climate and relief, or what we might call environment, are the best possible for the production of corn, but they are undoubtedly the best conditions within the United States for the production of that crop, and since we are classifying the soils of the United States, this is the all-important factor. These environmental conditions rather than statistics constitute the basis of comparison for the lands of the country. When it is desired to determine the capacity of the land of any given spot for the production of corn, the character of the climate, soil and relief in that spot is determined in the greatest detail possible. These are then compared with the characteristics of soil, climate and relief in the spot where corn production is highest. Each of the characteristics on this spot are classified and evaluated, therefore, in comparison with the characteristics in the most favorable spot and the total sum of the evaluations gives the value of the land in that spot as compared with the best one for the production of corn.

The characteristics of soil, climate and relief in all parts of the country are studied on the basis of the climatic data of the Weather Bureau, on the basis of all of the available data on relief and finally, but mainly, on the basis of the reports and maps of the Soil survey. This method makes possible the classification of the land on every 40-acre tract in areas which have been covered by the Soil Survey. In areas which have not been covered by the Soil Survey, the results must be roughly estimated. Where the area has been covered by the Soil Survey and the character of the soil determined for practically every foot of the land, the classification will apply to practically every part of any given farm. The results can be used therefore, for determining the productivity of each kind of soil on the farm and when these are summed up according to acreage, the inherent productivity of the farm as a whole is thus given. This constitutes the most reliable basis possible for giving a value to the farm as well as for tax assessment.

This work is in progress but it is necessarily slow because it requires mature consideration of many factors. A rough approximation for the whole country by states was made several months ago for the National Resources Board and published in their report, but such general results cannot be applied to the problem of land quality on any given farm.

The results of our classification are expressed in tables and maps. In the tables the land, in terms of soil types or groups of soil types, is arranged in the order of the productivity for the area concerned, whether that be a county or some other unit area. The acreage is given also, and in addition each kind of land is given a rating showing its relative productivity not merely for the crop on which its general rating was based but also for all the crops which are grown in the locality where the land lies.

The work for the whole country cannot be completed until soil surveys have covered the whole country, but for large parts of each of the states and for all of a few states, the classification can be completed in a year or two.

The classification made for the National Resources Board showed that there are approximately 100,000,000 acres of land in the United States that would rate in inherent productivity for grains and grasses as Number 1 or in the first class. About 210,000,000 acres may be rated as Number 2, or land which is not capable of producing maximum crops of grains and grasses without the use of fertilizers, but which by good management and the use of manures or fertilizers may be brought to high productivity and maintained in that condition.

About 350,000,000 acres belong in class 3, or land that is definitely agricultural but must be regarded as relatively unproductive. A fourth class, including about 360,000,000 acres may be used for agriculture but is the lowest grade of land that can be considered agricultural. It includes the so-called submarginal lands. A fifth class of nearly 900,000,000 acres is considered nonagricultural. It may furnish some poor pasture.

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